

Abstract

The invention is a system for and a method of maintaining namespace consistency in a wide-area file system. In one embodiment, a wide-area file system has a plurality of replicas for a file. Each replica of a file and parent directories for the file are at a node. An update to a replica of the file is propagated to other replicas of the file. In response to receiving a propagated update to a replica at a node, the replica for the file at the node is updated. A directory operation (e.g., rename, link or unlink) may affect a backpointer for a replica. When a backpointer for a replica at a node is not consistent with the parent directories for the replica at the node, the the parent directories are modified to be consistent with the backpointer. A modification may be performed at a node while an earlier inconsistent modification may be ignored. As a result, consistency is maintained among the replicas.